

SEQUENCE LISTING

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Hu, Xu
Lu, Guihua

<120> Sunflower Anti-Pathogenic Proteins and
Genes and their Uses

<130> 5718-90

<150> 60/140, 646
<151> 1999-06-23

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<160> 25

<170> FastSEQ for Windows Version 3.0

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<211> 222

<212> PRT

<213> Helianthus annuus

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					20				25					30	
Thr	Val	Trp	Ala	Gly	Ala	Val	Pro	Gly	Gly	Gly	Arg	Gln	Leu	Asn	Ser
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Gly	Gln	Thr	Trp	Ser	Leu	Thr	Val	Ala	Ala	Gly	Thr	Ala	Gly	Ala	Arg
					50			55			60				
Ile	Trp	Pro	Arg	Thr	Asn	Cys	Asn	Phe	Asp	Gly	Ser	Gly	Arg	Gly	Arg
					65			70			75			80	
Cys	Gln	Thr	Gly	Asp	Cys	Asn	Gly	Leu	Leu	Gln	Cys	Gln	Asn	Tyr	Gly
					85			90			95				
Thr	Pro	Pro	Asn	Thr	Leu	Ala	Glu	Tyr	Ala	Leu	Asn	Gln	Phe	Asn	Asn
					100			105			110				
Leu	Asp	Phe	Phe	Asp	Ile	Ser	Leu	Val	Asp	Gly	Phe	Asn	Val	Pro	Met
					115			120			125				
Val	Phe	Arg	Pro	Asn	Ser	Asn	Gly	Cys	Thr	Arg	Gly	Ile	Ser	Cys	Thr
					130			135			140				
Ala	Asp	Ile	Asn	Gly	Gln	Cys	Pro	Gly	Glu	Leu	Arg	Ala	Pro	Gly	Gly
					145			150			155			160	
Cys	Asn	Asn	Pro	Cys	Thr	Val	Tyr	Lys	Thr	Asp	Gln	Tyr	Cys	Cys	Asn
					165			170			175				
Ser	Gly	Asn	Cys	Gly	Pro	Thr	Asp	Leu	Ser	Arg	Phe	Phe	Lys	Thr	Arg
					180			185			190				
Cys	Pro	Asp	Ala	Tyr	Ser	Tyr	Pro	Lys	Asp	Asp	Pro	Thr	Ser	Thr	Phe
					195			200			205				
Thr	Cys	Pro	Gly	Gly	Thr	Asn	Tyr	Asp	Val	Ile	Phe	Cys	Pro		

210

215

220

<210> 2
<211> 542
<212> PRT
<213> Helianthus annuus

<400> 2

Met Asn Asn Ser Arg Ser Val Phe Leu Leu Val Leu Ala Leu Ser Phe
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Cys Val Ser Phe Gly Ala Leu Ser Ser Ile Phe Asp Val Thr Ser Thr
20 25 30
Ser Glu Asp Phe Ile Thr Cys Leu Gln Ser Asn Ser Asn Asn Val Thr
35 40 45
Thr Ile Ser Gln Leu Val Phe Thr Pro Ala Asn Thr Ser Tyr Ile Pro
50 55 60
Ile Trp Gln Ala Ala Asp Pro Ile Arg Phe Asn Lys Ser Tyr Ile
65 70 75 80
Pro Lys Pro Ser Val Ile Val Thr Pro Thr Asp Glu Thr Gln Ile Gln
85 90 95
Thr Ala Leu Leu Cys Ala Lys Lys His Gly Tyr Glu Phe Arg Ile Arg
100 105 110
Asp Gly Gly His Asp Phe Glu Gly Asn Ser Tyr Thr Ala Asn Ala Pro
115 120 125
Phe Val Met Leu Asp Leu Val Asn Met Arg Ala Ile Glu Ile Asn Val
130 135 140
Glu Asn Arg Thr Ala Leu Val Gln Gly Gly Ala Leu Leu Gly Glu Leu
145 150 155 160
Tyr Tyr Thr Ile Ser Gln Lys Thr Asp Thr Leu Tyr Phe Pro Ala Gly
165 170 175
Ile Trp Ala Gly Val Gly Val Ser Gly Phe Leu Ser Gly Gly Tyr
180 185 190
Gly Asn Leu Leu Arg Lys Tyr Gly Leu Gly Ala Asp Asn Val Leu Asp
195 200 205
Ile Arg Phe Met Asp Val Asn Gly Asn Ile Leu Asp Arg Lys Ser Met
210 215 220
Gly Glu Asp Leu Phe Trp Ala Leu Arg Gly Gly Ala Ser Ser Phe
225 230 235 240
Gly Ile Val Leu Gln Trp Lys Leu Asn Leu Val Pro Val Pro Glu Arg
245 250 255
Val Thr Leu Phe Ser Val Ser Tyr Thr Leu Glu Gln Gly Ala Thr Asp
260 265 270
Ile Phe His Lys Tyr Gln Tyr Val Leu Pro Lys Phe Asp Arg Asp Leu
275 280 285
Leu Ile Arg Val Gln Leu Asn Thr Glu Tyr Ile Gly Asn Thr Thr Gln
290 295 300
Lys Thr Val Arg Ile Leu Phe His Gly Ile Tyr Gln Gly Asn Ile Asp
305 310 315 320
Thr Leu Leu Pro Leu Leu Asn Gln Ser Phe Pro Glu Leu Asn Val Thr
325 330 335
Arg Glu Val Cys Gln Glu Val Arg Met Val Gln Thr Thr Leu Glu Phe
340 345 350
Gly Gly Phe Asn Ile Ser Thr Pro Thr Ser Val Leu Ala Asn Arg Ser
355 360 365
Ala Ile Pro Lys Leu Ser Phe Lys Gly Lys Ser Asp Tyr Val Arg Thr
370 375 380
Pro Ile Pro Arg Ser Gly Leu Arg Lys Leu Trp Arg Lys Met Phe Glu

385	390	395	400
Asn Asp Asn Ser Gln Thr Leu Phe Met Tyr Thr Phe Gly Gly Lys Met			
405	410	415	
Glu Glu Tyr Ser Asp Thr Ala Ile Pro Tyr Pro His Arg Ala Gly Val			
420	425	430	
Leu Tyr Gln Val Phe Lys Arg Val Asp Phe Val Asp Gln Pro Ser Asp			
435	440	445	
Lys Thr Leu Ile Ser Leu Arg Arg Leu Ala Trp Leu Arg Ser Phe Asp			
450	455	460	
Lys Thr Leu Glu Pro Tyr Val Thr Ser Asn Pro Arg Glu Ala Tyr Met			
465	470	475	480
Asn Tyr Asn Asp Leu Asp Leu Gly Phe Asp Ser Ala Ala Tyr Glu Glu			
485	490	495	
Ala Ser Glu Trp Gly Glu Arg Tyr Trp Lys Arg Glu Asn Phe Lys Lys			
500	505	510	
Leu Ile Arg Ile Lys Ala Lys Val Asp Pro Glu Asn Phe Phe Arg His			
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Pro Gln Ser Ile Pro Val Phe Ser Arg Pro Leu Ser Asp Met			
530	535	540	

<210> 3

<211> 108

<212> PRT

<213> Helianthus annuus

<400> 3

Met Ala Lys Ile Ser Val Ala Phe Asn Ala Phe Leu Leu Leu Leu Phe			
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Val Leu Ala Ile Ser Glu Ile Gly Ser Val Lys Gly Glu Leu Cys Glu			
20	25	30	
Lys Ala Ser Gln Thr Trp Ser Gly Thr Cys Gly Lys Thr Lys His Cys			
35	40	45	
Asp Asp Gln Cys Lys Ser Trp Glu Gly Ala Ala His Gly Ala Cys His			
50	55	60	
Val Arg Asp Gly Lys His Met Cys Phe Cys Tyr Phe Asn Cys Ser Lys			
65	70	75	80
Ala Gln Lys Leu Ala Gln Asp Lys Leu Arg Ala Glu Glu Leu Ala Lys			
85	90	95	
Glu Lys Ile Glu Pro Glu Lys Ala Thr Ala Lys Pro			
100	105		

<210> 4

<211> 875

<212> DNA

<213> Helianthus annuus

<400> 4

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gcagccgtgt tcactattcg aaacaactgt ccatacacgg tttgggtctgg tgccgtgcct	120
ggtgtggggcc gacaacttaa ctcaggccaa acctggtctt taaccgtcgc agctggcaca	180
gcaggagccc gtatatggcc ccgaaccaa atgcaactttg atggttctgg gcgaggcagg	240
tgtcagaccc gtgattgcaa cggtctcctc caatgccaaa actatggtac cccacccaac	300
acattggccg agtacgctt gaaccagttc aacaatctt atttcttga catttcttctt	360
gtggacggat tcaatgtgcc gatgggttt agacccaatt ctaatgggtg caccgggggt	420
atctcatgta ctgcggatat caatggccag tgtcctggtg agttacgggc tcctggcggg	480
tgcaataacc cttgaccgt gtacaaaact gatcagtatt gttgcaactc tggaaattgt	540
ggaccaactg atttatcaag gttttcaag accagatgtc ctgatgcata tagttatccc	600

aaggatgatc	caactagcac	atttacgtgc	cccggtggaa	ccaactacga	cgttatattc	660
tgcccttgat	caaagccatt	tgattatatg	atcaaattaa	aaggagttcg	aatataaga	720
actgaaataa	atggagtgaa	taagtaatgg	agatagtcta	attataaggc	ttcttcctca	780
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tttaggaaaaaa	aaaaaaaaaaa	aaaaaaaaaaa	aaaaaa			875

<210> 5
<211> 1809
<212> DNA
<213> Helianthus annuus

<400> 5						
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cattggagc	attgtcttcc	attttcgatg	ttacttcaac	ttccgaagat	ttcataacct	120
gtctccaatc	caattccaac	aatgtcacca	ccatctctca	actcgcccc	accggccca	180
acacttctta	catacccccatt	tggcaagctg	cagccgaccc	tattcggttc	aacaatcct	240
acattccgaa	accatcgatc	atcggtactc	ccaccgatga	aacacagatc	caaaccgctc	300
tttatgcgc	caagaaaacac	ggatatgagt	tttagatccg	agacgggtgt	catgacttcg	360
agggcaactc	atacaccgcg	aacgctccgt	ttgtcatgt	tgtatctcg	aacatgaggg	420
ctatagagat	caacgttgc当地	aaccggaccg	cgctggtcca	gggtggcgct	ttgttggtg	480
agctctacta	cactattct	cagaaaacgg	acacccgt	ttttccgtct	ggtattttggg	540
ccgggtgtggg	tgtagccgg	ttttgagcg	gtgggtggta	tggaaacctg	ttgagggaaat	600
acgggcttgg	tgccgataat	ttttggata	ttcggttcat	ggatgttaat	gaaacattc	660
ttgataggaa	atcgatggc	gaagatttt	tttggcgct	tcgtggcggt	gggtcttcca	720
gttccgaat	tgttctccag	tggaagctca	atttggttcc	gggcctgaa	agagttactc	780
tttcagtgt	gagttatact	ctggagcaag	ggggcagcgg	cattttccat	aatatcaat	840
acgtgttacc	gaaatttgat	ctgtatttac	tcatcagat	tcaacttac	accaggatata	900
taggaacac	cactcagaaa	accgtacgaa	tattttca	cggtatttt	caaggcaata	960
ttgacacact	gttccgttgc当地	ttgaacaaa	gtttccaga	gctcaatgt	acacgagaag	1020
tctgccaaga	agtacgaatg	gtccagacta	cccttgagtt	tggaggctt	aacatctcta	1080
ccccgacatc	ggttctagcg	aaccgatcag	caatccccaa	gctgagctc	aaaggaaaat	1140
ctgactatgt	ccgaactcca	attcccagaa	gcgggctaa	aaagctctgg	agaaagatgt	1200
ttgaaaacga	caactcacag	actctcttca	tgtacacatt	tggggaaag	atggaggagt	1260
actcagatac	agcaattccg	tatccccata	gagctgggt	ttgttaccaa	gtttcaaga	1320
gggtggactt	cgtggatcag	ccttcggaca	agacccgt	atcactcaga	cggttagctt	1380
ggctccgaag	cttgataag	actttggagc	cgtacgtac	gagtaacccg	aggaggcg	1440
atatgaacta	caatgatctt	gattttgggt	ttgatagtgc	tgcataatgaa	gaagcaagt	1500
aatggggaga	aaggatattgg	aaaagggaga	actttaagaa	tttgatccg	atcaaggcta	1560
aagttgatcc	ggaaaatttc	tttagacacc	cacaalagtat	accggtttc	tcaagacctc	1620
tctcagat	gtgaagccaa	cacttggat	gggttctt	ttcttggata	tattggtaat	1680
aattattaaat	taagagtcaa	aagtgcatta	ctttgttgc当地	ttgtgcctt	tgtaccaatt	1740
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aaaaaaaaaa						1809

<210> 6
<211> 565
<212> DNA
<213> Helianthus annuus

<400> 6						
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aatgcttttcc	ttctgcttct	ctttgttctt	gctatctcg	aaatcgatc	ggtaaaaggaa	120
gaattatgt	agaaggcaag	ccagacatgg	tccggaaacat	gtggcaagac	aaaacactgt	180
gatgaccagt	gcaagtcttgc当地	ggagggtgca	gcccatggag	tttgtcacgt	gcgcgtatgg	240
aaacacatgt	gttctgcttgc当地	cttcaactgt	tccaaagccc	agaagttggc	tcaggataaaa	300
ctcagagcgg	aagagctcgc	caaggagaag	attgaacccg	aaaaggcgcac	agccaaacct	360
ttagtgc当地	gcaaatgtca	tacgattatg	aataaagaga	aaatgcttcc	tacttggcat	420

acactcaett	tgtgttcgta	atattcagac	ttttcacacct	taatgtcaca	tatTTTgacc	1080
cttcggatga	caatttagttt	agttaagtag	accgtgacat	taagctagca	ctcatactta	1140
aataatgcag	tgaaaagaag	cattttataa	gtatataaaa	gtgatttaat	tagcttttat	1200
ttcgtgcaga	aactaatcat	attcatcaca	aaactgcatt	cgtagacat	tctagatttg	1260
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<210> 10
 <211> 225
 <212> PRT
 <213> Vitis vinifera

<400> 10
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 Leu Phe Phe Thr Ser Ser Tyr Ala Ala Thr Phe Asn Ile Gln Asn His
 20 25 30
 Cys Ser Tyr Thr Val Trp Ala Ala Ala Val Pro Gly Gly Met Gln
 35 40 45
 Leu Gly Ser Gly Gln Ser Trp Ser Leu Asn Val Asn Ala Gly Thr Thr
 50 55 60
 Gly Ala Arg Val Trp Gly Arg Thr Asn Cys Asn Phe Asp Ala Ser Gly
 65 70 75 80
 Asn Gly Lys Cys Glu Thr Gly Asp Cys Gly Gly Leu Leu Gln Cys Thr
 85 90 95
 Ala Tyr Gly Thr Pro Pro Asn Thr Leu Ala Glu Phe Ala Leu Asn Gln
 100 105 110
 Phe Ser Asn Leu Asp Phe Phe Asp Ile Ser Leu Val Asp Gly Phe Asn
 115 120 125
 Val Pro Met Ala Phe Asn Pro Thr Ser Asn Gly Cys Thr Arg Gly Ile
 130 135 140
 Ser Cys Thr Ala Asp Ile Val Gly Glu Cys Pro Ala Ala Leu Lys Thr
 145 150 155 160
 Thr Gly Gly Cys Asn Asn Pro Cys Thr Val Phe Lys Thr Asp Glu Tyr
 165 170 175
 Cys Cys Asn Ser Gly Ser Cys Asn Ala Thr Thr Tyr Ser Glu Phe Phe
 180 185 190
 Lys Thr Arg Cys Pro Asp Ala Tyr Ser Tyr Pro Lys Asp Asp Gln Thr
 195 200 205
 Ser Thr Phe Thr Cys Pro Ala Gly Thr Asn Tyr Glu Val Ile Phe Cys
 210 215 220
 Pro
 225

<210> 11
 <211> 222
 <212> PRT
 <213> Vitis vinifera

<400> 11
 Met Arg Phe Thr Thr Leu Pro Ile Leu Ile Pro Leu Leu Ser
 1 5 10 15
 Leu Leu Phe Thr Ser Thr His Ala Ala Thr Phe Asp Ile Leu Asn Lys
 20 25 30
 Cys Thr Tyr Thr Val Trp Ala Ala Ser Pro Gly Gly Arg Arg
 35 40 45
 Leu Asp Ser Gly Gln Ser Trp Thr Ile Thr Val Asn Pro Gly Thr Thr

50	55	60
Asn Ala Arg Ile Trp Gly Arg Thr Ser Cys Thr Phe Asp Ala Asn Gly		
65	70	75
Arg Gly Lys Cys Glu Thr Gly Asp Cys Asn Gly Leu Leu Glu Cys Gln		80
85	90	95
Gly Tyr Gly Ser Pro Pro Asn Thr Leu Ala Glu Phe Ala Leu Asn Gln		
100	105	110
Pro Asn Asn Leu Asp Tyr Ile Asp Ile Ser Leu Val Asp Gly Phe Asn		
115	120	125
Ile Pro Met Asp Phe Ser Gly Cys Arg Gly Ile Gln Cys Ser Val Asp		
130	135	140
Ile Asn Gly Gln Cys Pro Ser Glu Leu Lys Ala Pro Gly Gly Cys Asn		
145	150	155
Asn Pro Cys Thr Val Phe Lys Thr Asn Glu Tyr Cys Cys Thr Asp Gly		160
165	170	175
Pro Gly Ser Cys Gly Pro Thr Thr Tyr Ser Lys Phe Phe Lys Asp Arg		
180	185	190
Cys Pro Asp Ala Tyr Ser Tyr Pro Gln Asp Asp Lys Thr Ser Leu Phe		
195	200	205
Thr Cys Pro Ser Gly Thr Asn Tyr Lys Val Thr Phe Cys Pro		
210	215	220

<210> 12
 <211> 202
 <212> PRT
 <213> Glycine Max

<400> 12		
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20	25	30
Ser Val Asp Val Pro Ala Gly Thr Lys Gly Ala Arg Val Trp Ala Arg		
35	40	45
Thr Gly Cys Asn Phe Asp Gly Ser Gly Arg Gly Gly Cys Gln Thr Gly		
50	55	60
Asp Cys Gly Gly Val Leu Asp Cys Lys Ala Tyr Gly Ala Pro Pro Asn		
65	70	75
Thr Leu Ala Glu Tyr Gly Leu Asn Gly Phe Asn Asn Leu Asp Phe Phe		80
85	90	95
Asp Ile Ser Leu Val Asp Gly Phe Asn Val Pro Met Asp Phe Ser Pro		
100	105	110
Thr Ser Asn Gly Cys Thr Arg Gly Ile Ser Cys Thr Ala Asp Ile Asn		
115	120	125
Gly Gln Cys Pro Ser Glu Leu Lys Thr Gln Gly Gly Cys Asn Asn Pro		
130	135	140
Cys Thr Val Phe Lys Thr Asp Gln Tyr Cys Cys Asn Ser Gly Ser Cys		
145	150	155
Gly Pro Thr Asp Tyr Ser Arg Phe Phe Lys Gln Arg Cys Pro Asp Ala		160
165	170	175
Tyr Ser Tyr Pro Lys Asp Asp Pro Pro Ser Thr Phe Thr Cys Asn Gly		
180	185	190
Gly Thr Asp Tyr Arg Val Val Phe Cys Pro		
195	200	

<210> 13
 <211> 223

<212> PRT

<213> Helainthus annuus

<400> 13

Met Thr Thr Ser Thr Leu Pro Thr Phe Leu Leu Leu Ala Ile Leu Phe
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His Tyr Thr Asn Ala Ala Val Phe Thr Ile Arg Asn Asn Cys Pro Tyr
20 25 30
Thr Val Trp Ala Gly Ala Val Pro Gly Gly Gly Arg Gln Leu Asn Ser
35 40 45
Gly Gln Thr Trp Ser Leu Thr Val Ala Ala Gly Thr Ala Gly Ala Arg
50 55 60
Ile Trp Pro Arg Thr Asn Cys Asn Phe Asp Gly Ser Gly Arg Gly Arg
65 70 75 80
Cys Gln Thr Gly Asp Cys Asn Gly Leu Leu Gln Cys Gln Asn Tyr Gly
85 90 95
Thr Pro Pro Asn Thr Phe Gly Ser Glu Tyr Ala Leu Asn Gln Phe Asn
100 105 110
Asn Leu Asp Phe Phe Asp Ile Ser Leu Val Asp Gly Phe Asn Val Pro
115 120 125
Met Val Phe Arg Pro Asn Ser Asn Gly Cys Thr Arg Gly Ile Ser Cys
130 135 140
Thr Ala Asp Ile Asn Gly Gln Cys Pro Gly Glu Leu Arg Ala Pro Gly
145 150 155 160
Gly Cys Asn Asn Pro Cys Thr Val Tyr Lys Thr Asp Gln Tyr Cys Cys
165 170 175
Asn Ser Gly Asn Cys Gly Pro Thr Asp Leu Ser Arg Phe Phe Lys Thr
180 185 190
Arg Cys Pro Asp Ala Tyr Ser Tyr Pro Lys Asp Asp Pro Thr Ser Thr
195 200 205
Phe Thr Cys Pro Gly Gly Thr Asn Tyr Asp Val Ile Phe Cys Pro
210 215 220

<210> 14

<211> 238

<212> PRT

<213> Lycopersicon esculentum

<400> 14

Phe Phe Phe Leu Leu Ala Phe Val Thr Tyr Thr Ala Ala Thr Phe
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Glu Val Arg Asn Asn Cys Pro Tyr Thr Val Trp Ala Ala Ser Thr Pro
20 25 30
Ile Gly Gly Arg Arg Leu Asp Arg Gly Gln Thr Trp Val Ile Asn
35 40 45
Ala Pro Arg Gly Thr Lys Met Ala Arg Ile Trp Gly Arg Thr Asn Cys
50 55 60
Asn Phe Asp Gly Asp Gly Arg Gly Ser Cys Gln Thr Gly Asp Cys Gly
65 70 75 80
Gly Val Leu Gln Cys Thr Gly Trp Gly Lys Pro Pro Asn Thr Leu Ala
85 90 95
Glu Tyr Ala Leu Asp Gln Phe Ser Asn Leu Asp Phe Trp Asp Ile Ser
100 105 110
Leu Val Asp Gly Phe Asn Ile Pro Met Thr Phe Ala Pro Thr Asn Pro
115 120 125
Ser Gly Gly Lys Cys His Ala Ile His Cys Thr Ala Asn Ile Asn Gly
130 135 140

Glu	Cys	Pro	Gly	Ser	Leu	Arg	Val	Pro	Gly	Gly	Cys	Asn	Asn	Pro	Cys
145					150				155						160
Thr	Thr	Phe	Gly	Gly	Gln	Gln	Tyr	Cys	Cys	Thr	Gln	Gly	Pro	Cys	Gly
					165				170						175
Pro	Thr	Asp	Leu	Ser	Arg	Phe	Phe	Lys	Gln	Arg	Cys	Pro	Asp	Ala	Tyr
					180			185							190
Ser	Tyr	Pro	Gln	Asp	Asp	Pro	Thr	Ser	Thr	Phe	Thr	Cys	Pro	Ser	Gly
					195			200				205			
Ser	Thr	Asn	Tyr	Arg	Val	Val	Phe	Cys	Pro	Asn	Gly	Val	Thr	Ser	Pro
					210			215			220				
Asn	Phe	Pro	Leu	Glu	Met	Pro	Ser	Ser	Asp	Glu	Glu	Ala	Lys		
					225			230			235				

<210> 15
 <211> 246
 <212> PRT
 <213> Solanum commersonii

<400> 15															
Met	Ala	Tyr	Leu	Arg	Ser	Ser	Phe	Val	Phe	Phe	Leu	Leu	Ala	Phe	Val
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Thr	Tyr	Thr	Tyr	Ala	Ala	Thr	Ile	Glu	Val	Arg	Asn	Asn	Cys	Pro	Tyr
						20			25						30
Thr	Val	Trp	Ala	Ala	Ser	Thr	Pro	Ile	Gly	Gly	Gly	Arg	Arg	Leu	Asp
						35			40			45			
Arg	Gly	Gln	Thr	Trp	Val	Ile	Asn	Ala	Pro	Arg	Gly	Thr	Lys	Met	Ala
						50			55			60			
Arg	Ile	Trp	Gly	Arg	Thr	Asn	Cys	Asn	Phe	Asp	Gly	Ala	Gly	Arg	Gly
						65			70			75			80
Ser	Cys	Gln	Thr	Gly	Asp	Cys	Gly	Gly	Val	Leu	Gln	Cys	Thr	Gly	Trp
						85			90						95
Gly	Lys	Pro	Pro	Asn	Thr	Leu	Ala	Glu	Tyr	Ala	Leu	Asp	Gln	Phe	Ser
						100			105						110
Asn	Leu	Asp	Phe	Trp	Asp	Ile	Ser	Leu	Val	Asp	Gly	Phe	Asn	Ile	Pro
						115			120						125
Met	Thr	Phe	Ala	Pro	Thr	Asn	Pro	Ser	Gly	Gly	Lys	Cys	His	Ala	Ile
						130			135			140			
His	Cys	Thr	Ala	Asn	Ile	Asn	Gly	Glu	Cys	Pro	Gly	Ser	Leu	Arg	Val
						145			150			155			160
Pro	Gly	Gly	Cys	Asn	Asn	Pro	Cys	Thr	Thr	Phe	Gly	Gly	Gln	Gln	Tyr
						165			170						175
Cys	Cys	Thr	Gln	Gly	Pro	Cys	Gly	Pro	Thr	Asp	Leu	Ser	Arg	Phe	Phe
						180			185			190			
Lys	Gln	Arg	Cys	Pro	Asp	Ala	Tyr	Ser	Tyr	Pro	Gln	Asp	Asp	Pro	Thr
						195			200			205			
Ser	Thr	Phe	Thr	Cys	Pro	Ser	Gly	Ser	Thr	Asn	Tyr	Arg	Val	Val	Phe
						210			215			220			
Cys	Pro	Asn	Gly	Val	Thr	Ser	Pro	Asn	Phe	Pro	Leu	Glu	Met	Pro	Ala
						225			230			235			240
Ser	Asp	Glu	Glu	Ala	Lys										
					245										

<210> 16
 <211> 529
 <212> PRT
 <213> Helianthus annuus

<400> 16

Met Glu Thr Ser Ile Leu Thr Leu Leu Leu Leu Leu Ser Thr Gln
1 5 10 15
Ser Ser Ala Thr Ser Arg Ser Ile Thr Asp Arg Phe Ile Gln Cys Leu
20 25 30
His Asp Arg Ala Asp Pro Ser Phe Pro Ile Thr Gly Glu Val Tyr Thr
35 40 45
Pro Gly Asn Ser Ser Phe Pro Thr Val Leu Gln Asn Tyr Ile Arg Asn
50 55 60
Leu Arg Phe Asn Glu Thr Thr Pro Lys Pro Phe Leu Ile Ile Thr
65 70 75 80
Ala Glu His Val Ser His Ile Gln Ala Ala Val Val Cys Gly Lys Gln
85 90 95
Asn Arg Leu Leu Lys Thr Arg Ser Gly Gly His Asp Tyr Glu Gly
100 105 110
Leu Ser Tyr Leu Thr Asn Thr Asn Gln Pro Phe Phe Ile Val Asp Met
115 120 125
Phe Asn Leu Arg Ser Ile Asn Val Asp Ile Glu Gln Glu Thr Ala Trp
130 135 140
Val Gln Ala Gly Ala Thr Leu Gly Glu Val Tyr Tyr Arg Ile Ala Glu
145 150 155 160
Lys Ser Asn Lys His Gly Phe Pro Ala Gly Val Cys Pro Thr Val Gly
165 170 175
Val Gly Gly His Phe Ser Gly Gly Tyr Gly Asn Leu Met Arg Lys
180 185 190
Tyr Gly Leu Ser Val Asp Asn Ile Val Asp Ala Gln Ile Ile Asp Val
195 200 205
Asn Gly Lys Leu Leu Asp Arg Lys Ser Met Gly Glu Asp Leu Phe Trp
210 215 220
Ala Tyr Thr Gly Gly Val Ser Phe Gly Val Val Leu Ala Tyr
225 230 235 240
Lys Ile Lys Leu Val Arg Val Pro Glu Val Val Thr Val Phe Thr Ile
245 250 255
Glu Arg Arg Glu Glu Gln Asn Leu Ser Thr Ile Ala Glu Arg Trp Val
260 265 270
Gln Val Ala Asp Lys Leu Asp Arg Asp Leu Phe Leu Arg Met Thr Phe
275 280 285
Ser Val Ile Asn Asp Thr Asn Gly Gly Lys Thr Val Arg Ala Ile Phe
290 295 300
Pro Thr Leu Tyr Leu Gly Asn Ser Arg Asn Leu Val Thr Leu Leu Asn
305 310 315 320
Lys Asp Phe Pro Glu Leu Gly Leu Gln Glu Ser Asp Cys Thr Glu Met
325 330 335
Ser Trp Val Glu Ser Val Leu Tyr Tyr Thr Gly Phe Pro Ser Gly Thr
340 345 350
Pro Thr Thr Ala Leu Leu Ser Arg Thr Pro Gln Arg Leu Asn Pro Phe
355 360 365
Lys Ile Lys Ser Asp Tyr Val Gln Asn Pro Ile Ser Lys Arg Gln Phe
370 375 380
Glu Phe Ile Phe Glu Arg Met Lys Glu Leu Glu Asn Gln Met Leu Ala
385 390 395 400
Phe Asn Pro Tyr Gly Gly Arg Met Ser Glu Ile Ser Glu Phe Ala Lys
405 410 415
Pro Phe Pro His Arg Ser Gly Asn Ile Ala Lys Ile Gln Tyr Glu Val
420 425 430
Asn Trp Glu Asp Leu Ser Asp Glu Ala Glu Asn Arg Tyr Leu Asn Phe
435 440 445

Thr Arg Leu Met Tyr Asp Tyr Met Thr Pro Phe Val Ser Lys Asn Pro
 450 455 460
 Arg Glu Ala Phe Leu Asn Tyr Arg Asp Leu Asp Ile Gly Ile Asn Ser
 465 470 475 480
 His Gly Arg Asn Ala Tyr Thr Glu Gly Met Val Tyr Gly His Lys Tyr
 485 490 495
 Phe Lys Glu Thr Asn Tyr Lys Arg Leu Val Ser Val Lys Thr Lys Val
 500 505 510
 Asp Pro Asp Asn Phe Phe Arg Asn Glu Gln Ser Ile Pro Thr Leu Ser
 515 520 525
 Ser

<210> 17
 <211> 529
 <212> PRT
 <213> Healianthus annuus

<400> 17
 Met Gln Thr Ser Ile Leu Thr Leu Leu Leu Leu Leu Ser Thr Gln
 1 5 10 15
 Ser Ser Ala Thr Ser Arg Ser Ile Thr Asp Arg Phe Ile Gln Cys Leu
 20 25 30
 His Asp Arg Ala Asp Pro Ser Phe Pro Ile Thr Gly Glu Val Tyr Thr
 35 40 45
 Pro Gly Asn Ser Ser Phe Pro Thr Val Leu Gln Asn Tyr Ile Arg Asn
 50 55 60
 Leu Arg Phe Asn Glu Thr Thr Pro Lys Pro Phe Leu Ile Ile Thr
 65 70 75 80
 Ala Glu His Val Ser His Ile Gln Ala Ala Val Val Cys Gly Lys Gln
 85 90 95
 Asn Arg Leu Leu Lys Thr Arg Ser Gly Gly His Asp Tyr Glu Gly
 100 105 110
 Leu Ser Tyr Leu Thr Asn Thr Asn Gln Pro Phe Phe Ile Val Asp Met
 115 120 125
 Phe Asn Leu Arg Ser Ile Asn Ile Asp Ile Glu Gln Glu Thr Ala Trp
 130 135 140
 Val Gln Ala Gly Ala Thr Leu Gly Glu Val Tyr Tyr Arg Ile Ala Glu
 145 150 155 160
 Lys Ser Asn Lys His Gly Phe Pro Ala Gly Val Cys Pro Thr Val Gly
 165 170 175
 Val Gly Gly His Phe Ser Gly Gly Tyr Gly Asn Leu Met Arg Lys
 180 185 190
 Tyr Gly Leu Ser Val Asp Asn Ile Val Asp Ala Gln Ile Ile Asp Val
 195 200 205
 Asn Gly Lys Leu Leu Asp Arg Lys Ser Met Gly Glu Asp Leu Phe Trp
 210 215 220
 Ala Ile Thr Gly Gly Val Ser Phe Gly Val Val Leu Ala Tyr
 225 230 235 240
 Lys Ile Lys Leu Val Arg Val Pro Glu Val Val Thr Val Phe Thr Ile
 245 250 255
 Glu Arg Arg Glu Glu Gln Asn Leu Ser Thr Ile Ala Glu Arg Trp Val
 260 265 270
 Gln Val Ala Asp Lys Leu Asp Arg Asp Leu Phe Leu Arg Met Thr Phe
 275 280 285
 Ser Val Ile Asn Asp Thr Asn Gly Gly Lys Thr Val Arg Ala Ile Phe
 290 295 300

Pro Thr Leu Tyr Leu Gly Asn Ser Arg Asn Leu Val Thr Leu Leu Asn
 305 310 315 320
 Lys Asp Phe Pro Glu Leu Gly Leu Gln Glu Ser Asp Cys Thr Glu Met
 325 330 335
 Ser Trp Val Glu Ser Val Leu Tyr Tyr Thr Gly Phe Pro Ser Gly Thr
 340 345 350
 Pro Thr Thr Ala Leu Leu Ser Arg Thr Pro Gln Arg Leu Asn Pro Phe
 355 360 365
 Lys Ile Lys Ser Asp Tyr Val Gln Asn Pro Ile Ser Lys Arg Gln Phe
 370 375 380
 Glu Phe Ile Phe Glu Arg Leu Lys Glu Leu Glu Asn Gln Met Leu Ala
 385 390 395 400
 Phe Asn Pro Tyr Gly Gly Arg Met Ser Glu Ile Ser Glu Phe Ala Lys
 405 410 415
 Pro Phe Pro His Arg Ser Gly Asn Ile Ala Lys Ile Gln Tyr Glu Val
 420 425 430
 Asn Trp Glu Asp Leu Ser Asp Glu Ala Glu Asn Arg Tyr Leu Asn Phe
 435 440 445
 Thr Arg Leu Met Tyr Asp Tyr Met Thr Pro Phe Val Ser Lys Asn Pro
 450 455 460
 Arg Lys Ala Phe Leu Asn Tyr Arg Asp Leu Asp Ile Gly Ile Asn Ser
 465 470 475 480
 His Gly Arg Asn Ala Tyr Thr Glu Gly Met Val Tyr Gly His Lys Tyr
 485 490 495
 Phe Lys Glu Thr Asn Tyr Lys Arg Leu Val Ser Val Lys Thr Lys Val
 500 505 510
 Asp Pro Asp Asn Phe Phe Arg Asn Glu Gln Ser Ile Pro Thr Leu Ser
 515 520 525
 Ser

<210> 18
 <211> 535
 <212> PRT
 <213> Papaver somniferum

<400> 18
 Met Met Cys Arg Ser Leu Thr Leu Arg Phe Phe Leu Phe Ile Val Leu
 1 5 10 15
 Leu Gln Thr Cys Val Arg Gly Gly Asp Val Asn Asp Asn Leu Leu Ser
 20 25 30
 Ser Cys Leu Asn Ser His Gly Val His Asn Phe Thr Thr Leu Ser Thr
 35 40 45
 Asp Thr Asn Ser Asp Tyr Phe Lys Leu Leu His Ala Ser Met Gln Asn
 50 55 60
 Pro Leu Phe Ala Lys Pro Thr Val Ser Lys Pro Ser Phe Ile Val Met
 65 70 75 80
 Pro Gly Ser Lys Glu Glu Leu Ser Ser Thr Val His Cys Cys Thr Arg
 85 90 95
 Glu Ser Trp Thr Ile Arg Leu Arg Ser Gly Gly His Ser Tyr Glu Gly
 100 105 110
 Leu Ser Tyr Thr Ala Asp Thr Pro Phe Val Ile Val Asp Met Met Asn
 115 120 125
 Leu Asn Arg Ile Ser Ile Asp Val Leu Ser Glu Thr Ala Trp Val Glu
 130 135 140
 Ser Gly Ala Thr Leu Gly Glu Leu Tyr Tyr Ala Ile Ala Gln Ser Thr
 145 150 155 160

Asp Thr Leu Gly Phe Thr Ala Gly Trp Cys Pro Thr Val Gly Ser Gly
 165 170 175
 Gly His Ile Ser Gly Gly Gly Phe Gly Met Met Ser Arg Lys Tyr Gly
 180 185 190
 Leu Ala Ala Asp Asn Val Val Asp Ala Ile Leu Ile Asp Ser Asn Gly
 195 200 205
 Ala Ile Leu Asp Arg Glu Lys Met Gly Asp Asp Val Phe Trp Ala Ile
 210 215 220
 Arg Gly Gly Gly Gly Val Trp Gly Ala Ile Tyr Ala Trp Lys Ile
 225 230 235 240
 Lys Leu Leu Pro Val Pro Glu Lys Leu Thr Val Phe Arg Val Thr Lys
 245 250 255
 Asn Val Gly Ile Glu Asp Ala Ser Ser Leu Leu His Lys Trp Gln Tyr
 260 265 270
 Val Ala Asp Glu Leu Asp Glu Asp Phe Thr Val Ser Val Leu Gly Gly
 275 280 285
 Val Asn Gly Asn Asp Ala Trp Leu Met Phe Leu Gly Leu His Leu Gly
 290 295 300
 Arg Lys Asp Ala Ala Lys Thr Ile Ile Asp Glu Lys Phe Pro Glu Leu
 305 310 315 320
 Gly Leu Val Asp Lys Glu Phe Gln Glu Met Ser Trp Gly Glu Ser Met
 325 330 335
 Ala Phe Leu Ser Gly Leu Asp Thr Ile Ser Glu Leu Asn Asn Arg Phe
 340 345 350
 Leu Lys Phe Asp Glu Arg Ala Phe Lys Thr Lys Val Asp Phe Thr Lys
 355 360 365
 Val Ser Val Pro Leu Asn Val Phe Arg His Ala Leu Glu Met Leu Ser
 370 375 380
 Glu Gln Pro Gly Gly Phe Ile Ala Leu Asn Gly Phe Gly Gly Lys Met
 385 390 395 400
 Ser Glu Ile Ser Thr Asp Phe Thr Pro Phe Pro His Arg Lys Gly Thr
 405 410 415
 Lys Leu Met Phe Glu Tyr Ile Ile Ala Trp Asn Gln Asp Glu Glu Ser
 420 425 430
 Lys Ile Gly Glu Phe Ser Glu Trp Leu Ala Lys Phe Tyr Asp Tyr Leu
 435 440 445
 Glu Pro Phe Val Ser Lys Glu Pro Arg Val Gly Tyr Val Asn His Ile
 450 455 460
 Asp Leu Asp Ile Gly Gly Ile Asp Trp Arg Asn Lys Ser Ser Thr Thr
 465 470 475 480
 Asn Ala Val Glu Ile Ala Arg Asn Trp Gly Glu Arg Tyr Phe Ser Ser
 485 490 495
 Asn Tyr Glu Arg Leu Val Lys Ala Lys Thr Leu Ile Asp Pro Asn Asn
 500 505 510
 Val Phe Asn His Pro Gln Ser Ile Pro Pro Met Met Lys Phe Glu Glu
 515 520 525
 Ile Tyr Met Leu Lys Glu Leu
 530 535

<210> 19
 <211> 538
 <212> PRT
 <213> Eschscholzia californica

<400> 19

Met Glu Asn Lys Thr Pro Ile Phe Phe Ser Leu Ser Ile Phe Leu Ser
 1 5 10 15

Leu Leu Asn Cys Ala Leu Gly Gly Asn Asp Leu Leu Ser Cys Leu Thr
 20 25 30
 Phe Asn Gly Val Arg Asn His Thr Val Phe Ser Ala Asp Ser Asp Ser
 35 40 45
 Asp Phe Asn Arg Phe Leu His Leu Ser Ile Gln Asn Pro Leu Phe Gln
 50 55 60
 Asn Ser Leu Ile Ser Lys Pro Ser Ala Ile Ile Leu Pro Gly Ser Lys
 65 70 75 80
 Glu Glu Leu Ser Asn Thr Ile Arg Cys Ile Arg Lys Gly Ser Trp Thr
 85 90 95
 Ile Arg Leu Arg Ser Gly Gly His Ser Tyr Glu Gly Leu Ser Tyr Thr
 100 105 110
 Ser Asp Thr Pro Phe Ile Leu Ile Asp Leu Met Asn Leu Asn Arg Val
 115 120 125
 Ser Ile Asp Leu Glu Ser Glu Thr Ala Trp Val Glu Ser Gly Ser Thr
 130 135 140
 Leu Gly Glu Leu Tyr Tyr Ala Ile Thr Glu Ser Ser Ser Lys Leu Gly
 145 150 155 160
 Phe Thr Ala Gly Trp Cys Pro Thr Val Gly Thr Gly Gly His Ile Ser
 165 170 175
 Gly Gly Gly Phe Gly Met Met Ser Arg Lys Tyr Gly Leu Ala Ala Asp
 180 185 190
 Asn Val Val Asp Ala Ile Leu Ile Asp Ala Asn Gly Ala Ile Leu Asp
 195 200 205
 Arg Gln Ala Met Gly Glu Asp Val Phe Trp Ala Ile Arg Gly Gly Gly
 210 215 220
 Gly Gly Val Trp Gly Ala Ile Tyr Ala Trp Lys Ile Lys Leu Leu Pro
 225 230 235 240
 Val Pro Glu Lys Val Thr Val Phe Arg Val Thr Lys Asn Val Ala Ile
 245 250 255
 Asp Glu Ala Thr Ser Leu Leu His Lys Trp Gln Phe Val Ala Glu Glu
 260 265 270
 Leu Glu Glu Asp Phe Thr Leu Ser Val Leu Gly Gly Ala Asp Glu Lys
 275 280 285
 Gln Val Trp Leu Thr Met Leu Gly Phe His Phe Gly Leu Lys Thr Val
 290 295 300
 Ala Lys Ser Thr Phe Asp Leu Leu Phe Pro Glu Leu Gly Leu Val Glu
 305 310 315 320
 Glu Asp Tyr Leu Glu Met Ser Trp Gly Glu Ser Phe Ala Tyr Leu Ala
 325 330 335
 Gly Leu Glu Thr Val Ser Gln Leu Asn Asn Arg Phe Leu Lys Phe Asp
 340 345 350
 Glu Arg Ala Phe Lys Thr Lys Val Asp Leu Thr Lys Glu Pro Leu Pro
 355 360 365
 Ser Lys Ala Phe Tyr Gly Leu Leu Glu Arg Leu Ser Lys Glu Pro Asn
 370 375 380
 Gly Phe Ile Ala Leu Asn Gly Phe Gly Gly Gln Met Ser Lys Ile Ser
 385 390 395 400
 Ser Asp Phe Thr Pro Phe Pro His Arg Ser Gly Thr Arg Leu Met Val
 405 410 415
 Glu Tyr Ile Val Ala Trp Asn Gln Ser Glu Gln Lys Lys Thr Glu
 420 425 430
 Phe Leu Asp Trp Leu Glu Lys Val Tyr Glu Phe Met Lys Pro Phe Val
 435 440 445
 Ser Lys Asn Pro Arg Leu Gly Tyr Val Asn His Ile Asp Leu Asp Leu
 450 455 460
 Gly Gly Ile Asp Trp Gly Asn Lys Thr Val Val Asn Asn Ala Ile Glu

465	470	475	480
Ile Ser Arg Ser Trp Gly Glu Ser Tyr Phe Leu Ser Asn Tyr Glu Arg			
485	490	495	
Leu Ile Arg Ala Lys Thr Leu Ile Asp Pro Asn Asn Val Phe Asn His			
500	505	510	
Pro Gln Ser Ile Pro Pro Met Ala Asn Phe Asp Tyr Leu Glu Lys Thr			
515	520	525	
Leu Gly Ser Asp Gly Gly Glu Val Val Ile			
530	535		

<210> 20
 <211> 542
 <212> PRT
 <213> Helianthus annuus

<400> 20			
Met Asn Asn Ser Arg Ser Val Phe Leu Leu Val Leu Ala Leu Ser Phe			
1	5	10	15
Cys Val Ser Phe Gly Ala Leu Ser Ser Ile Phe Asp Val Thr Ser Thr			
20	25	30	
Ser Glu Asp Phe Ile Thr Cys Leu Gln Ser Asn Ser Asn Asn Val Thr			
35	40	45	
Thr Ile Ser Gln Leu Val Phe Thr Pro Ala Asn Thr Ser Tyr Ile Pro			
50	55	60	
Ile Trp Gln Ala Ala Asp Pro Ile Arg Phe Asn Lys Ser Tyr Ile			
65	70	75	80
Pro Lys Pro Ser Val Ile Val Thr Pro Thr Asp Glu Thr Gln Ile Gln			
85	90	95	
Thr Ala Leu Leu Cys Ala Lys Lys His Gly Tyr Glu Phe Arg Ile Arg			
100	105	110	
Asp Gly Gly His Asp Phe Glu Gly Asn Ser Tyr Thr Ala Asn Ala Pro			
115	120	125	
Phe Val Met Leu Asp Leu Val Asn Met Arg Ala Ile Glu Ile Asn Val			
130	135	140	
Glu Asn Arg Thr Ala Leu Val Gln Gly Gly Ala Leu Leu Gly Glu Leu			
145	150	155	160
Tyr Tyr Thr Ile Ser Gln Lys Thr Asp Thr Leu Tyr Phe Pro Ala Gly			
165	170	175	
Ile Trp Ala Gly Val Gly Val Ser Gly Phe Leu Ser Gly Gly Tyr			
180	185	190	
Gly Asn Leu Leu Arg Lys Tyr Gly Leu Gly Ala Asp Asn Val Leu Asp			
195	200	205	
Ile Arg Phe Met Asp Val Asn Gly Asn Ile Leu Asp Arg Lys Ser Met			
210	215	220	
Gly Glu Asp Leu Phe Trp Ala Leu Arg Gly Gly Ala Ser Ser Phe			
225	230	235	240
Gly Ile Val Leu Gln Trp Lys Leu Asn Leu Val Pro Val Pro Glu Arg			
245	250	255	
Val Thr Leu Phe Ser Val Ser Tyr Thr Leu Glu Gln Gly Ala Thr Asp			
260	265	270	
Ile Phe His Lys Tyr Gln Tyr Val Leu Pro Lys Phe Asp Arg Asp Leu			
275	280	285	
Leu Ile Arg Val Gln Leu Asn Thr Glu Tyr Ile Gly Asn Thr Thr Gln			
290	295	300	
Lys Thr Val Arg Ile Leu Phe His Gly Ile Tyr Gln Gly Asn Ile Asp			
305	310	315	320
Thr Leu Leu Pro Leu Leu Asn Gln Ser Phe Pro Glu Leu Asn Val Thr			

	325	330	335
Arg Glu Val Cys Gln Glu Val Arg Met Val Gln Thr Thr Leu Glu Phe			
340	345	350	
Gly Gly Phe Asn Ile Ser Thr Pro Thr Ser Val Leu Ala Asn Arg Ser			
355	360	365	
Ala Ile Pro Lys Leu Ser Phe Lys Gly Lys Ser Asp Tyr Val Arg Thr			
370	375	380	
Pro Ile Pro Arg Ser Gly Leu Arg Lys Leu Trp Arg Lys Met Phe Glu			
385	390	395	400
Asn Asp Asn Ser Gln Thr Leu Phe Met Tyr Thr Phe Gly Gly Lys Met			
405	410	415	
Glu Glu Tyr Ser Asp Thr Ala Ile Pro Tyr Pro His Arg Ala Gly Val			
420	425	430	
Leu Tyr Gln Val Phe Lys Arg Val Asp Phe Val Asp Gln Pro Ser Asp			
435	440	445	
Lys Thr Leu Ile Ser Leu Arg Arg Leu Ala Trp Leu Arg Ser Phe Asp			
450	455	460	
Lys Thr Leu Glu Pro Tyr Val Thr Ser Asn Pro Arg Glu Ala Tyr Met			
465	470	475	480
Asn Tyr Asn Asp Leu Asp Leu Gly Phe Asp Ser Ala Ala Tyr Glu Glu			
485	490	495	
Ala Ser Glu Trp Gly Glu Arg Tyr Trp Lys Arg Glu Asn Phe Lys Lys			
500	505	510	
Leu Ile Arg Ile Lys Ala Lys Val Asp Pro Glu Asn Phe Phe Arg His			
515	520	525	
Pro Gln Ser Ile Pro Val Phe Ser Arg Pro Leu Ser Asp Met			
530	535	540	

<210> 21
 <211> 80
 <212> PRT
 <213> Raphanus sativus

	<400> 21	
Met Ala Lys Phe Ala Ser Ile Ile Val Leu Leu Phe Val Ala Leu Val		
1	5	10
Val Phe Ala Ala Phe Glu Glu Pro Thr Met Val Glu Ala Gln Lys Leu		
20	25	30
Cys Gln Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly Asn Asn Asn		
35	40	45
Ala Cys Lys Asn Gln Cys Ile Arg Leu Glu Lys Ala Arg His Gly Ser		
50	55	60
Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr Phe Pro Cys		
65	70	75
		80

<210> 22
 <211> 51
 <212> PRT
 <213> Sinapis alba

	<400> 22	
Gln Lys Leu Cys Glu Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly		
1	5	10
Asn Asn Asn Ala Cys Lys Asn Gln Cys Ile Asn Leu Glu Lys Ala Arg		
20	25	30
His Gly Ser Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr		
35	40	45

Phe Pro Cys
50

<210> 23
<211> 80
<212> PRT
<213> Arabidopsis thaliana

<400> 23
Met Ala Lys Ser Ala Thr Ile Val Thr Leu Phe Phe Ala Ala Leu Val
1 5 10 15
Phe Phe Ala Ala Leu Glu Ala Pro Met Val Val Glu Ala Gln Lys Leu
20 25 30
Cys Glu Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly Asn Ser Asn
35 40 45
Ala Cys Lys Asn Gln Cys Ile Asn Leu Glu Lys Ala Arg His Gly Ser
50 55 60
Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr Phe Pro Cys
65 70 75 80

<210> 24
<211> 108
<212> PRT
<213> Helianthus annuus

<400> 24
Met Ala Lys Ile Ser Val Ala Phe Asn Ala Phe Leu Leu Leu Leu Phe
1 5 10 15
Val Leu Ala Ile Ser Glu Ile Gly Ser Val Lys Gly Glu Leu Cys Glu
20 25 30
Lys Ala Ser Gln Thr Trp Ser Gly Thr Cys Gly Lys Thr Lys His Cys
35 40 45
Asp Asp Gln Cys Lys Ser Trp Glu Gly Ala Ala His Gly Ala Cys His
50 55 60
Val Arg Asp Gly Lys His Met Cys Phe Cys Tyr Phe Asn Cys Ser Lys
65 70 75 80
Ala Gln Lys Leu Ala Gln Asp Lys Leu Arg Ala Glu Glu Leu Ala Lys
85 90 95
Glu Lys Ile Glu Pro Glu Lys Ala Thr Ala Lys Pro
100 105

<210> 25
<211> 100
<212> PRT
<213> Pisum sativum

<400> 25
Met Glu Lys Lys Ser Leu Ala Ala Leu Ser Phe Leu Leu Leu Leu Val
1 5 10 15
Leu Phe Val Ala Gln Glu Ile Val Val Thr Glu Ala Asn Thr Cys Glu
20 25 30
His Leu Ala Asp Thr Tyr Arg Gly Val Cys Phe Thr Asn Ala Ser Cys
35 40 45
Asp Asp His Cys Lys Asn Lys Ala His Leu Ile Ser Gly Thr Cys His
50 55 60
Asp Trp Lys Cys Phe Cys Thr Gln Asn Cys Glu Arg Arg Arg Asn Lys
65 70 75 80

Asn Trp Asn Asp Cys Met Glu Asn Thr Pro Arg Pro Glu Arg Thr Tyr		
85	90	95
Asn Ala Met Glu		
100		
<210> 26		
<211> 26		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> PCR primer corresponding to vector sequence		
<400> 26		
gcgattaagt tgggttaacgc cagggt		26
<210> 27		
<211> 26		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> PCR primer corresponding to vector sequence		
<400> 27		
tccggctcgt atgttgtgtg gaattg		26
<210> 28		
<211> 230		
<212> DNA		
<213> Helianthus annuus		
<220>		
<221> misc_feature		
<222> (1)...(230)		
<223> n = A,T,C or G		
<400> 28		
tgatcagtt tgtacacggt gcaagggtta ttgcacccgc cagagccgt aactcnccag		60
gacactggcc attgatatcc gcagtacatg agataccccg ggtgcaccca ttagaattgg		120
gtctaaacac catcgacaca ttgaatccgt ccacaagaga aatgtcaaag aaatcaagat		180
tgttgaactg gttccaagcg tactcggccc atgtgtttgg gtggggtacc		230
<210> 29		
<211> 20		
<212> DNA		
<213> Helianthus annuus		
<400> 29		
ccgagtacgc tttaaccagt		20
<210> 30		
<211> 21		
<212> DNA		
<213> Helianthus annuus		
<400> 30		

tccgcagtagc atgagatacc c	21
<210> 31	
<211> 29	
<212> DNA	
<213> Helianthus annuus	
<400> 31	
acaatgacaa cctccaccct tcccacttt	29
<210> 32	
<211> 112	
<212> DNA	
<213> Helianthus annuus	
<400> 32	
tccggaccat gtctggcttg ccttctcaca taattctcct ttcaccgatc cgatttctga	60
gatagcaaga acaaagagaa gcagaagaaa agcattgaaa gcaactgaaa tt	112
<210> 33	
<211> 26	
<212> DNA	
<213> Helianthus annuus	
<400> 33	
gaccatgtct ggcttgccctt ctcaca	26
<210> 34	
<211> 35	
<212> DNA	
<213> Helianthus annuus	
<400> 34	
gagcttgagc ttagttcagt aactaaaaaa tggcc	35
<210> 35	
<211> 163	
<212> DNA	
<213> Helianthus annuus	
<400> 35	
tgtacacatt tggggaaag atggaggagt actcagatac agcaattccg tatccccata	60
gagctggggt gtttaccaa gtgttcaaga gggggactt cgtggatcag ctttcggaca	120
agaccttcat atcactcaga cgggtggctt ggctccgaag ctt	163
<210> 36	
<211> 24	
<212> DNA	
<213> Helianthus annuus	
<400> 36	
ccaaccgtct gagtgatatc aagg	24
<210> 37	
<211> 24	
<212> DNA	
<213> Helianthus annuus	

<400> 37	
gggaagatgg aggagtaactc agat	24
<210> 38	
<211> 29	
<212> DNA	
<213> Helianthus annuus	
<400> 38	
cggcacgagt aactctcggt cagtgttcc	29
<210> 39	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> PCR primer corresponding to vector sequence	
<400> 39	
gtaatacgcac tcactataagg gc	22
<210> 40	
<211> 26	
<212> DNA	
<213> Helianthus annuus	
<400> 40	
cgaatagtga acacggctgc attggc	26
<210> 41	
<211> 26	
<212> DNA	
<213> Helianthus annuus	
<400> 41	
gctgcagctt gccaaatggg tatgtc	26